

Name: \_\_\_\_\_

# INVESTIGATING BLOOD SUGAR

Answer the questions below as you progress through the Investigating Blood Sugar lesson and slideshow.

## PART 1: SYSTEMS

1. Look at the pictures on the slideshow. Fill in the KWL chart below.

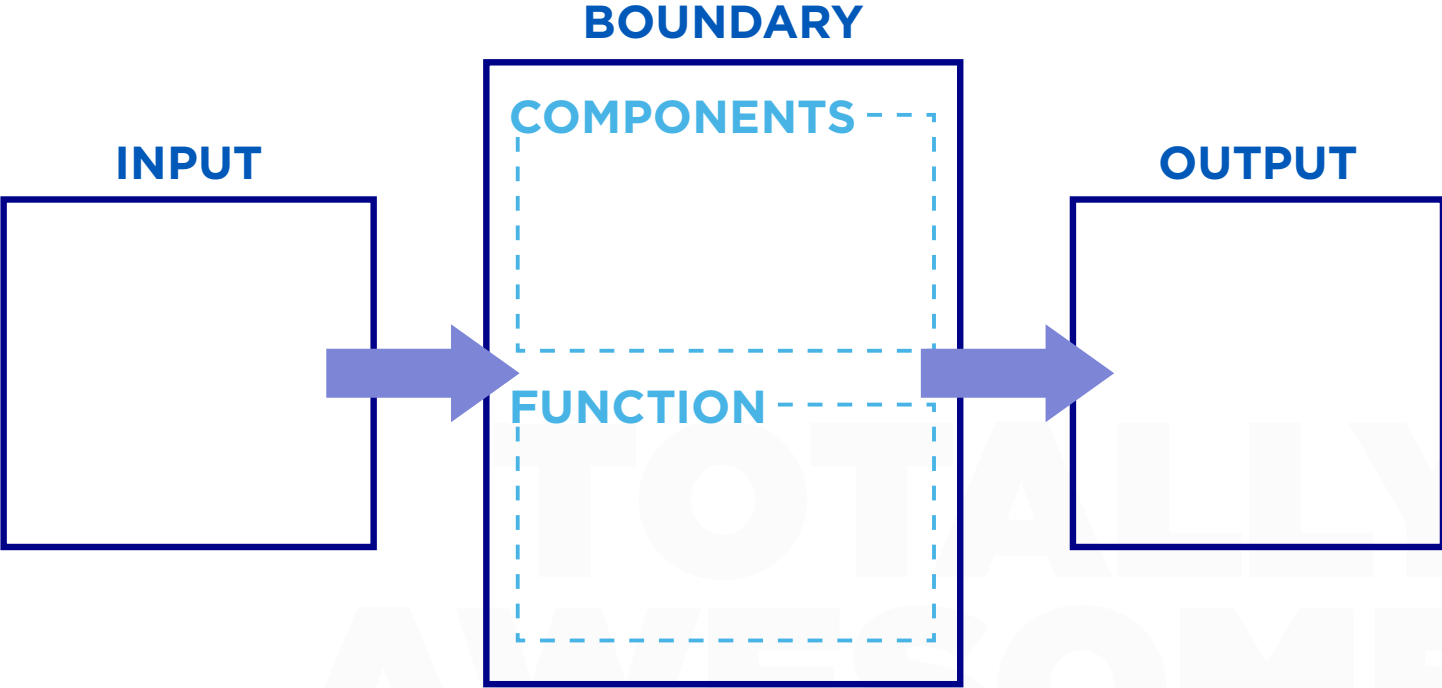
WHAT I KNOW	WHAT I WANT TO KNOW	WHAT I LEARNED

2. How is your school a system? Label the parts of a school system.

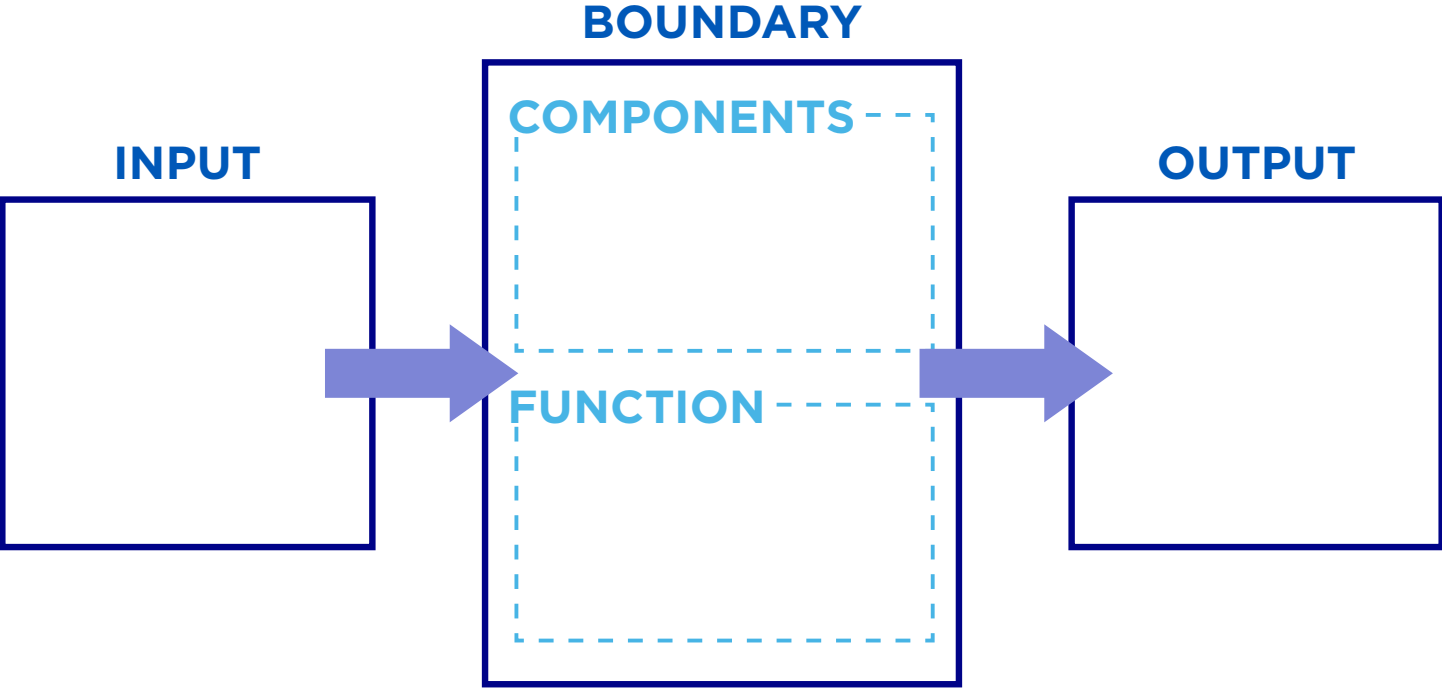
3. How is a computer a system? Label the parts of a computer system.



4. How is your body a system? Fill in the systems organizer below.



5. There are many systems in your body that work together. Fill in the systems organizer below with details about the circulatory system.



## PART 2: SOLUTIONS

1. What senses can you use to determine the concentration of a solution?

2. You will be given 4 cups labeled A through D. Number each cup 1 through 4. Cup #1 should be the most concentrated solution; cup #4 should be the least concentrated. Fill in the chart below.

	MY GUESS	ACTUAL ANSWER
CUP A		
CUP B		
CUP C		
CUP D		

3. How did you determine which solution was the most concentrated?

4. Explain the differences between solutions #1 and #4.

5. How does concentration relate to viscosity?

6. Which solution had the most viscosity?

## PART 3: BLOOD SUGAR

1. What percentage of your body is made of water?
2. Out of all the water in your body, how much is found in plasma?
3. Where else is water found in the body?
4. Using the table below, calculate how much sugar is in your body.

ACTION & CALCULATION	VALUE
<b>1</b> Record weight.	<b>lb</b>
<b>2</b> Convert pounds to kilograms. <i>Multiply by 0.45</i>	<b>kg</b>
<b>3</b> Find serum body weight. <i>Multiply by 6% (0.06)</i>	<b>kg</b>
<b>4</b> Convert kilograms to liter. <i>Multiply by 1</i>	<b>l</b>
<b>5</b> Convert liter to deciliter. <i>Multiply by 10</i>	<b>dl</b>
<b>6</b> Find blood sugar miligram per deciliter. <i>Multiply by blood sugar content (use 95 as base)</i>	<b>mg</b>
<b>7</b> Convert milligrams to grams. <i>Multiply by 0.001</i>	<b>g</b>

## PART 4: REFLECTION & DIAGNOSIS

1. How many grams of sugar do you have in your blood?
2. Is that enough sugar for the day?
3. What would happen if all 500 grams were in your blood at one time?
4. What are the best ways to get glucose into your body?
5. Using the table below, calculate how much sugar is in Katie's body.

ACTION & CALCULATION	VALUE
<b>1</b> Record weight.	<b>lb</b>
<b>2</b> Convert pounds to kilograms. <i>Multiply by 0.45</i>	<b>kg</b>
<b>3</b> Find serum body weight. <i>Multiply by 6% (0.06)</i>	<b>kg</b>
<b>4</b> Convert kilograms to liter. <i>Multiply by 1</i>	<b>l</b>
<b>5</b> Convert liter to deciliter. <i>Multiply by 10</i>	<b>dl</b>
<b>6</b> Find blood sugar miligram per deciliter. <i>Multiply by blood sugar content (300)</i>	<b>mg</b>
<b>7</b> Convert milligrams to grams. <i>Multiply by 0.001</i>	<b>g</b>

6. Fill in the sugar range chart with the appropriate blood sugar concentrations. Then decide where Katie's blood sugar readings place her.

**HYPOTONIC**

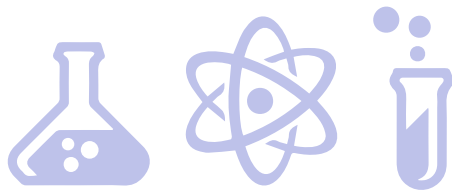
**NORMAL**

**HYPERTONIC**

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7. Based on what you learned about Katie, provide a treatment plan. What input would you recommend? Provide evidence for your reason.

TOTALLY  
AWESOME  
SCIENCE



### **Here's what I did today!**

Today I visited the virtual PROMISE Lab at Sanford Research. I learned about systems, solutions, and blood sugar. I was able to review a mock patient's symptoms, run virtual tests, and diagnosis her illness while learning about diabetes.